

systems are not being operated, during start-up or shutdown of the ventilation systems, during baghouse cleaning or repair, during cellar cleaning, during maintenance, or other conditions nonrepresentative of normal operating conditions. If any of these conditions apply, they will be noted on the inspection report.

If for any reason the minimum ventilation rates cannot be met, the ventilation systems will be inspected. Based on this inspection the next course of action will be chosen. This could include one of the following options: 1) reduce process rates as much as possible to minimize emissions, 2) provide alternate ventilation, or 3) begin complete cessation of the associated process.

Copies of all ventilation inspections will be sent to MDNR on a quarterly basis.

"\*" - Under the supervision of MDNR (post construction), Method 2 tests will be conducted (40 CFR pt. 60 Appendix A) to measure actual process gas flowrate while varying sinter process gas baghouse fan amperage. A relationship of fan amperage to actual flowrate will be developed.

The total ventilation of the Sinter Building will be designed to meet a 200 foot per minute nominal face velocity. Fan amperage will be continuously recorded. A minimum fan amperage (corresponding to the 100,000 acfm design criteria) will be added to the above table.

In addition to the continuous recording of fan amperage, quarterly measurements will be made to ensure that equipment efficiencies remain the same, and that the design 200 foot per minute face velocity is maintained. If these quarterly tests indicate that the original relationship of process gas flowrate to fan amperage is no longer correct, new Method 2 testing will be conducted to establish a new fan amperage to process gas flowrate relationship.

**Supplement C**  
**Road Vacuum Sweeper**  
**Operation and Maintenance Procedures**

This information will be added when the Road Sweeper is selected and purchased. A final decision in this area has not been made.

**Supplement D**  
**Quarterly Baghouse Inspections**

## **Quarterly Baghouse Inspections**

### **Procedure for Visolite® Baghouse Leak Detection Testing**

#### **Ventilation Baghouse:**

1. Visolite® testing is normally done on sinter plant down days each quarter or when leaks are suspected that cannot be found by visual inspection.
2. The baghouse fan is operating, the air impulse (bag cleaning) system is off.
3. Visolite® in the appropriate amount is introduced into the inlet manifold to each module through the 2-inch nipple provided.
4. After 1.5 minutes the top (inlet) damper to the module is closed.
5. The cell is checked with the ultraviolet light and all leaks repaired.
6. The test is repeated through all five modules.

#### **Sinter Machine Baghouse:**

1. Visolite® testing is normally done on sinter plant down days each quarter or when leaks are suspected that cannot be found by visual inspection.
2. The Visolite® inspection is a duplication of the above for the six modules in the baghouse.

#### **ASARCO Design Baghouse - Sinter Building Ventilation:**

1. Visolite® testing is normally done on sinter plant down days each quarter or when leaks are suspected that cannot be found by visual inspection.
2. The main baghouse fan is operating.

3. The shaking system is turned off.
4. 1,2,3 cellar dampers are open.
5. 4,5,6,7,8,9 cellar dampers are closed.
6. The appropriate amount of Visolite® is dumped into provided port on the inlet side of the baghouse fan.
7. The fan is operated for 1.5 minutes.
8. Shut off fan.
9. Check for leaks in the first three cellars with the ultraviolet light (UV).
10. Repair any leaks found.
11. Repeat this procedure in groups of three cellars.

Exhibit C

Asarco Glover

EXHIBIT C

Map Showing Area of Soil Stabilization Around Current  
Concentrate Unloading Area

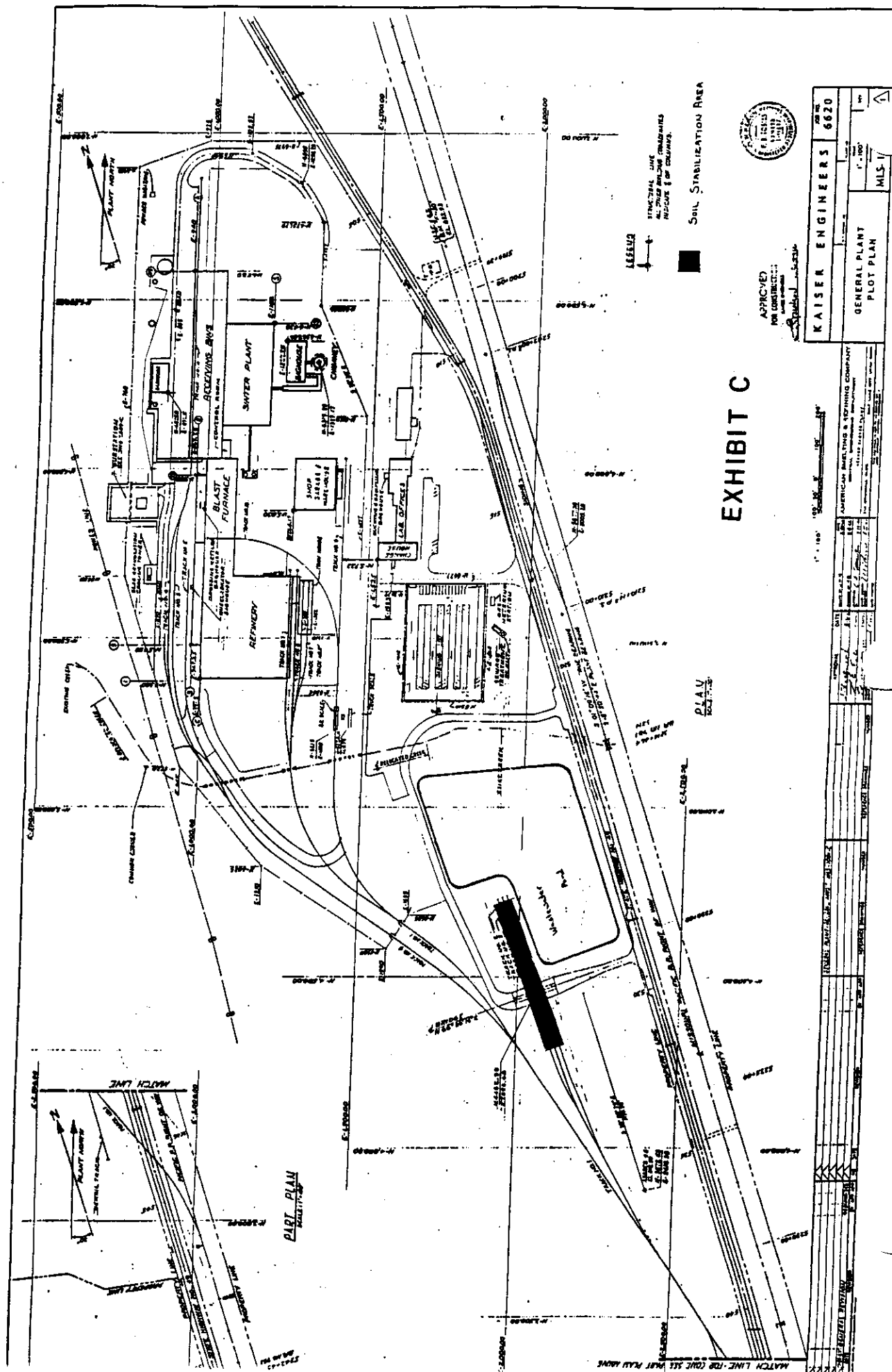


Exhibit D

Asarco Glover

EXHIBIT D

Map Showing Road Paving Project and Unloading Building Access

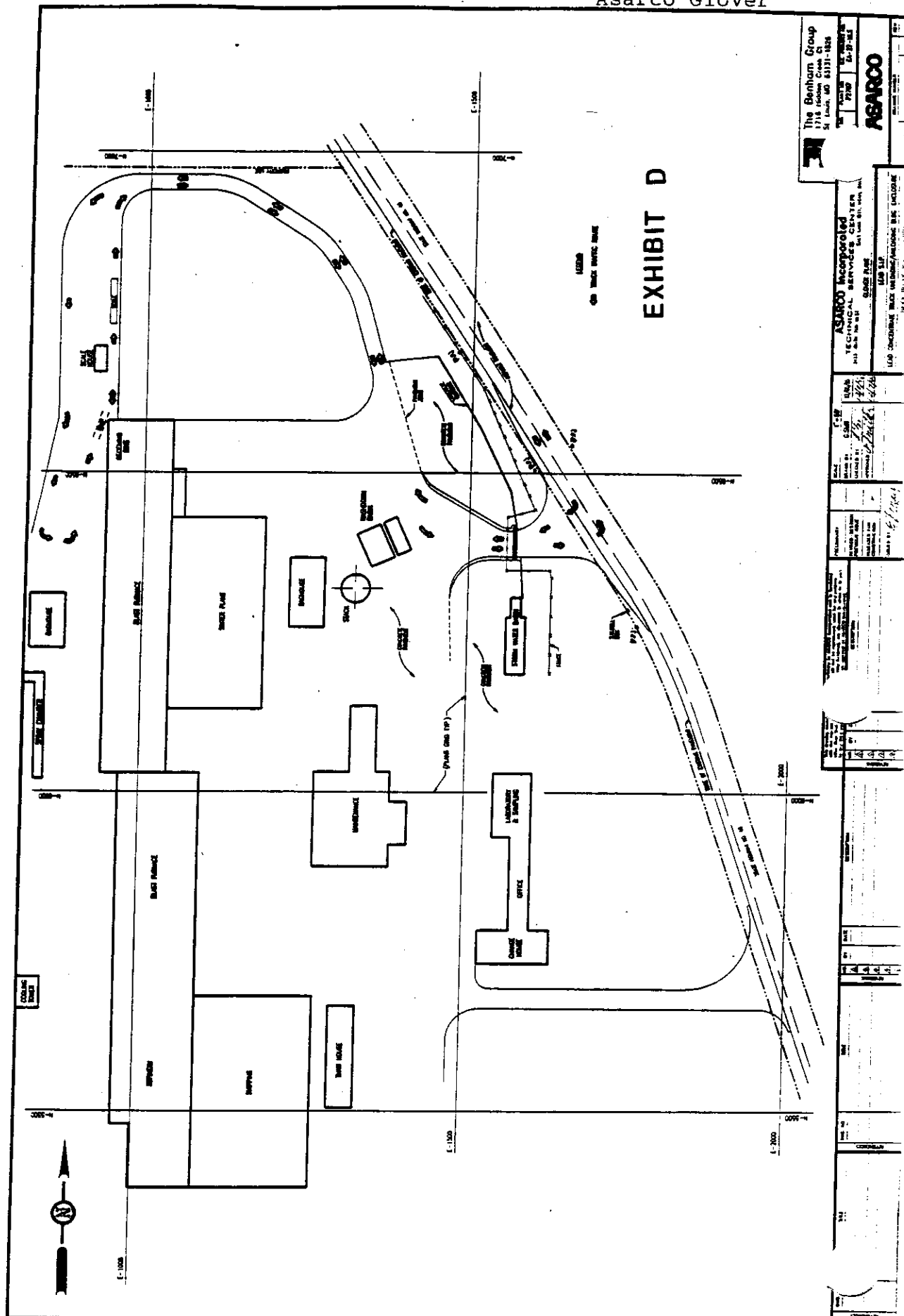


EXHIBIT E

Map Showing Road Sprinkler and Sweeper Coverage Areas

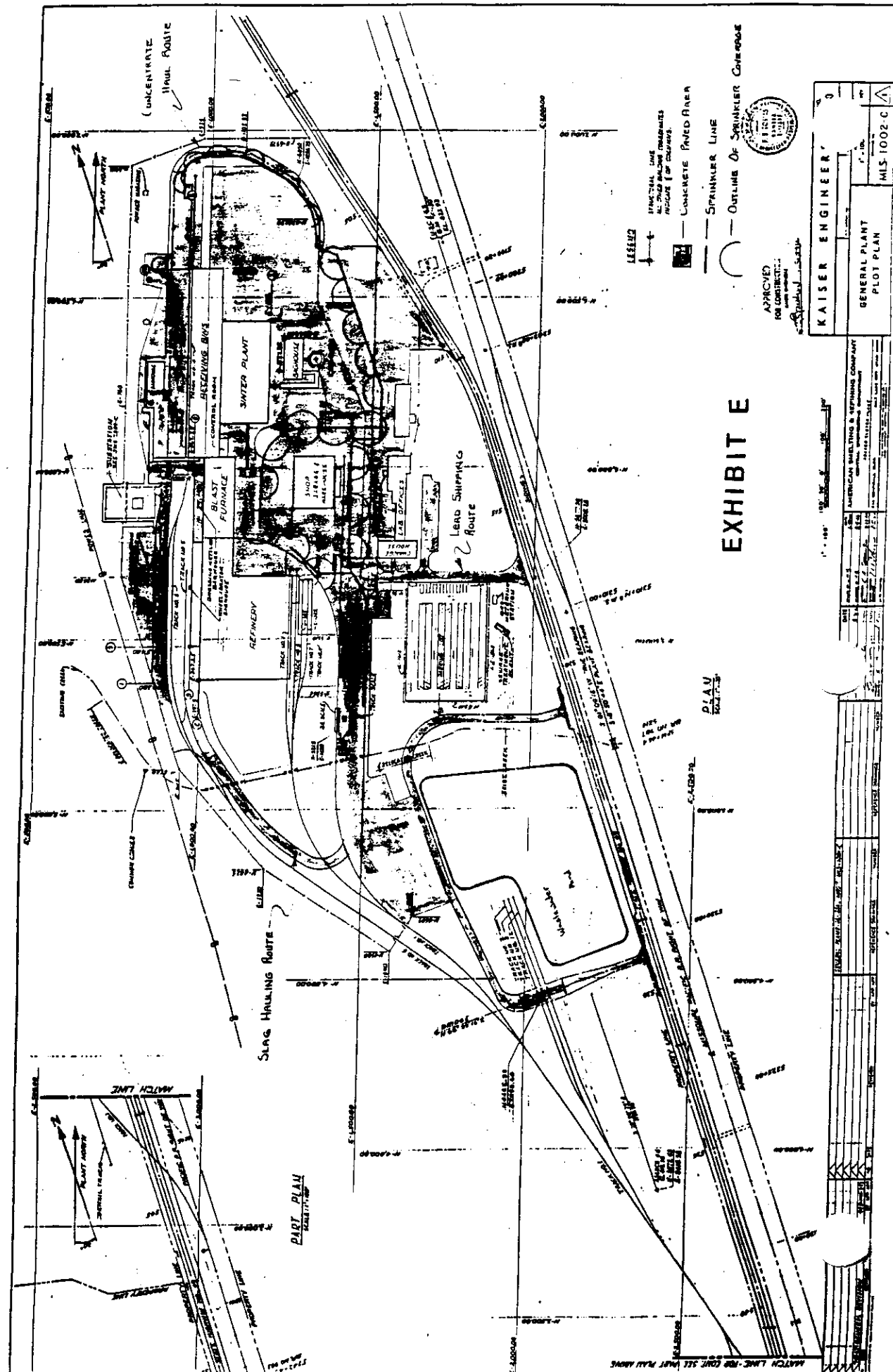
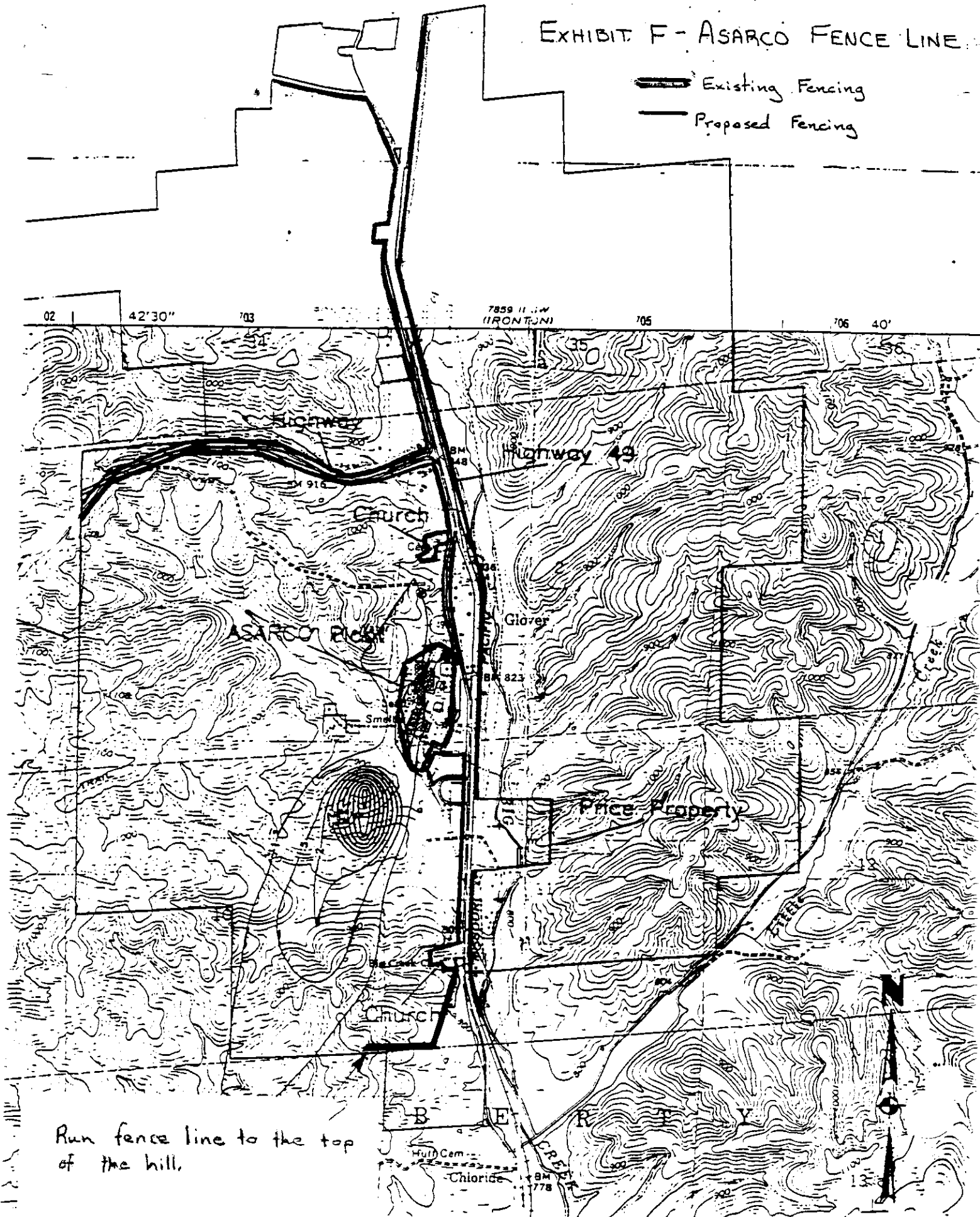


EXHIBIT F

Map Showing ASARCO Fence Line

## EXHIBIT F - ASARCO FENCE LINE

Existing Fencing  
Proposed Fencing



condition using a certified neutral density filter to produce an known obscuration of light. Such procedures shall provide a system check of the analyzer internal optical surfaces and all active electronic circuitry including the lamp and photodetector assembly used in the measurement mode.

3.4 Data Averages. All COMS installed pursuant to these requirements shall complete a minimum of one cycle of sampling and analyzing for each successive 10-second period and one cycle of data recording for each specified data average, e.g., 6-minute average. An arithmetic or integrated average of all data should be used.

#### 4. OPACITY MEASUREMENT.

4.1 The opacity of emissions shall be continuously measured and recorded in units of percent opacity, and shall be expressed in the averaging period specified in the applicable regulation.

4.2 The COMS shall be operated, maintained and calibrated to meet these requirements in accordance with the instructions provided by the instrument manufacturer.

4.3 Except for COMS breakdowns, repairs, calibration checks, zero and span checks and other quality-assurance activities, the COMS shall be in continuous operation during all periods of source operation.

4.4 A data average shall be considered valid if no less than 83 percent of the opacity readings upon which the data average is based are obtained.

4.5 Any and all valid data averages may be used to determine compliance with the applicable opacity standard. Data obtained during "out-of-control" periods shall not be used for compliance determination; however, the data can be used for identifying periods of failure to meet quality assurance and control criteria.

#### 5. QUALITY CONTROL (QC) REQUIREMENTS

5.1 Calibration Drift (CD) Assessment. The COMS shall be checked, at least once daily and the CD quantified and recorded at the zero (or low-level) and upscale-level opacity. The COMS shall be adjusted whenever the CD exceeds the specification of PS-1, and the COMS shall be declared "out-of-control" when the CD exceeds twice the specification of PS-1. Corrective actions, followed by a validating CD check are required when the COMS is out-of-control.

5.2 Fault indicators Assessment. At least daily, the fault lamp indicators, data acquisition system error messages, and other system self diagnostic indicators shall be checked. The appropriate corrective actions should be taken when the COMS is operating outside preset limits. All COMS data recorded during periods in which fault indicators are illuminated shall be considered invalid.

5.3 Performance audits. Checks of the individual COMS components and factors affecting the accuracy of the monitoring data, as described below, shall be conducted on a quarterly basis. Examples of detailed audit procedures may be found in Reference 1, "Performance Audit Procedures for Opacity Monitors", and Reference 2, "CEMS Pilot Project: Evaluation of CEMS Reliability and QA

**Exhibit G**

**Test Methods 203, 203-A, and 203-B**

METHOD 203. DETERMINATION OF THE OPACITY OF EMISSIONS FROM  
STATIONARY SOURCES BY CONTINUOUS OPACITY MONITORING SYSTEMS

1. APPLICABILITY AND PRINCIPLE

1.1 Applicability. This method applies to the measurement of the opacity of emissions from stationary sources by continuous opacity monitoring systems (COMS), in order to determine compliance with an emissions standard. The method is not applicable where water droplets are present in the effluent being measured.

1.2 Principle. The opacity of emissions from a stationary source is continuously measured and recorded using a COMS that meets all the requirements of Performance Specification 1 (PS 1) of 40 CFR Part 60, Appendix B. Minimum quality control (QC) and quality assurance (QA) requirements are specified to assess the quality of COMS performance. Daily zero and span checks, quarterly performance audits, and annual zero alignment checks are required in order to assure the proper functioning of the COMS and the accuracy of the COMS data.

Because control and corrective action encompasses a variety of policies, specifications, standards, and corrective measures, this method treats QC requirements in general terms to allow the development of a QC system that is most effective and efficient for the circumstances.

2. DEFINITIONS

2.1 Continuous Opacity Monitoring System (COMS). The total equipment required for the determination of the opacity of

Procedures Volume 1". The following identify the absolute minimum checks that shall be included in the performance audit:

5.3.1 Optical Alignment Assessment. The status of the optical alignment of the monitor components shall be checked and recorded according to the procedures specified by the monitor manufacturer. Realign as necessary.

5.3.2 Optical Surface Dust Accumulation Assessment. The apparent effluent opacity shall be compared and recorded before and after cleaning of each of the exposed optical surfaces. The total optical surface dust accumulation shall be determined by summing the apparent reductions in opacity for all of the optical surfaces that are cleaned. Caution should be employed in performing this check since fluctuations in effluent opacity occurring during the cleaning cycle may adversely affect the results.

5.3.3 Zero and Upscale Response Assessment. The zero and upscale response errors shall be determined and recorded according to the CD procedures. The error is defined as the difference (in % opacity) between the correct value and the observed value for the zero and high-level calibration checks.

5.3.4 Zero Compensation Assessment. The value of the zero compensation applied at the time of the audit shall be calculated as equivalent opacity, corrected to stack exit conditions as necessary, according to the procedures specified by the manufacturer. Record the compensation applied to the effluent recorded by the monitor system.

5.3.5 Stack Exit Correlation Error Assessment. The optical pathlength correction ratio (OPLR) shall be computed from the monitor pathlength and stack exit diameter and shall be compared, and the difference recorded, to the monitor setup value. The stack exit correlation error shall be determined as the absolute value of the difference between the measured value and the correct value, expressed as a percentage of the correct value.

5.3.6 Calibration Error Assessment. A three-point calibration error test of the COMS shall be conducted. For either calibration error test methods below, three neutral density filters meeting the requirements of PS-1, shall be placed in the COMS light beam path five consecutive times and the monitor responses shall be independently recorded from the permanent COMS data recorder. Additional guidance for conducting this test is included in Section 7.0 of PS-1. The low-, mid-, and high-range calibration error results shall be computed as the mean difference and 95 percent confidence interval for the difference between the expected and actual responses of the monitor as corrected to stack exit conditions. These values shall be calculated using the procedures of Section 8.0 of PS-1.

5.3.6.1 Primary Calibration Error Method. The calibration error test requires the installation of an external calibration audit device (zero-jig). The zero-jig shall be adjusted to provide the same zero response as the monitor's simulated zero.

5.3.6.2 Alternative Calibration Error Method. Conduct an incremental calibration test by superimposing the neutral density

filters over the effluent opacity and comparing the COMS responses to the expected value calculated from the filter and opacity values immediately preceding the superimposing. Record both the stack effluent opacity and the calibration filter value prior to each test. This method is sensitive to fluctuations in the effluent opacity during the test.

5.3.6.3 Attenuators. Use calibration attenuators (i.e. neutral density filters) with values that have been determined according to Section 7.1.3 "Attenuator Calibration" of PS 1, Appendix B, 40 CFR Part 60, and produce simulated opacities (corrected to stack exit conditions as necessary) in the ranges listed in Table 1 below. For emission standards of 10 percent (or less) opacity, attenuator selection may be based on a 10 percent opacity standard.

5.3.6.2. Attenuator Stability. The stability of the attenuator values should be checked at least once per year according to the procedures specified in PS-1. The attenuators shall be recalibrated if the stability checks indicate a change of two percent opacity or greater.

TABLE 1 - FILTER RANGES FOR COMS PERFORMANCE AUDITS

Audit Point -- Audit Filter Range (% Op)

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|   |           |                                      |
|---|-----------|--------------------------------------|
| 1 | 20 - 60   | Percent of the Emission Limit (low)  |
| 2 | 80 - 120  | Percent of the Emission Limit (mid)  |
| 3 | 150 - 200 | Percent of the Emission Limit (high) |

5.4 Zero alignment Assessment. Compare the COMSSs simulated zero to the actual clear path zero of the installation annually. The audit may be conducted in conjunction with, but prior to, a performance audit.

5.4.1 Primary Zero Alignment Method. The primary zero alignment shall be performed under clear path conditions. This may be accomplished if the process is not operating and the monitor pathlength is free of particulate matter or the monitor may be removed from its installation and set up under clear path conditions. The absence of particulate matter shall be demonstrated prior to conducting the test at the installed site. No adjustment to the monitor is allowed other than the establishment of the proper monitor pathlength and correct optical alignment of the monitor components. Record the monitor response to a clear path condition and to the monitor's simulated zero condition as percent opacity corrected to stack exit conditions as necessary. For monitors with automatic zero compensation, disconnect or disable the zero compensation mechanism or record the amount of correction applied to the monitor's simulated zero condition. The response difference in percent opacity to the clear path and simulated zero conditions shall be recorded as the zero alignment error. Adjust the monitor's simulated zero device to provide the same response as the clear path condition. Restore the COMS to its operating mode.

5.4.2 Alternate Zero Alignment Method. Monitors capable of allowing the installation of an external, removable zero-jig, may use the equipment for an alternative zero alignment provided that the zero-jig setting is established for the monitor pathlength and recorded for the specific COMS by comparison of the COMS responses to the installed zero-jig and to the clear path condition; the zero-jig is demonstrated to be capable of producing a consistent zero response when it is repeatedly (i.e., three consecutive installations and removals prior to conducting the final zero alignment check) installed on the COMS. The zero-jig setting shall be permanently set at the time of the initial COMS zeroing to the clear path zero value and protected when not in use to ensure that the setting equivalent to zero opacity does not change. The zero-jig setting shall be checked and recorded prior to initiating the zero alignment. Source owners and operators that employ a zero-jig shall perform a primary zero alignment audit once every 3 years.

#### 5.5 Monitor Acceptance Criteria.

5.5.1 Performance Assessment. The following criteria are to be used for determining acceptable performance of and out-of-control periods for the COMS:

TABLE 2 - PERFORMANCE AUDIT CRITERIA

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|                               |                              |
|-------------------------------|------------------------------|
| Stack Exit Correlation Error: | ≤ 2 percent                  |
| Fault Indicators:             | Inactive - no error messages |
| Zero and Upscale Responses:   | ≤ 2 percent opacity          |
|                               | Zero                         |
|                               | Compe                        |
|                               | nsati                        |

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|                                    |                               | ty     |
| Optical Alignment:                 | Misalignment error            |        |
|                                    | ≤ 2 percent opacity           |        |
| Optical Surface Dust Accumulation: | ≤ 4 percent opacity           |        |
| Calibration Error:                 | ≤ 2 percent opacity           |        |
| Zero Alignment                     | ≤ 5 percent opacity for one   |        |
|                                    | check                         |        |
|                                    | ≤ 2 percent opacity for three |        |
|                                    | consecutive checks            |        |
| Valid Data Average Capture         | ≥ 95 percent of source        |        |
|                                    | operating time                |        |

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5.5.2 Zero Alignment. The zero alignment is acceptable if the error at the simulated zero check is less than 2 percent opacity prior to adjustment. The simulated zero check shall be adjusted to provide the correct response each time the zero alignment check is performed.

5.5.3 Unacceptable Results - Single Performance Assessment. The COMS is out-of-control whenever the results of a quarterly performance audit indicate non-compliance with any of the performance assessment criteria of TABLE 2 of §5.5.1 above. If the COMS is out-of-control, take necessary corrective action to eliminate the problem. Following corrective action, the source owner or operator must re-conduct the appropriate failed portion of the audit and other applicable portions to determine whether the COMS is operating properly and within specifications. The COMS owner or operator shall record both audit results showing the COMS to be out-of-control and the results following corrective action.

COMS data obtained during any out-of-control period are may not be used for compliance determination or to meet the data capture requirement of §5.5.6, however the data can be used for identifying periods where there has been a failure to meet quality assurance and control criteria.

5.5.4 Unacceptable Results - Multiple Performance Assessments. Repeated audit failures (i.e., out-of-control conditions resulting from the quarterly audits) indicate that the QC procedures are inadequate or the COMS is incapable of providing quality data. The source owner or operator shall increase the frequency of the above QC procedures until the performance criteria is maintained or modify or repalce the COMS whenever two consecutive quarters of unacceptable performance occurs.

5.5.5 Unacceptable Zero Alignment. If the error of the simulated zero check prior to adjustment exceeds 5 percent opacity for any zero check, or exceeds the 2 percent opacity acceptance criterion for three consecutive checks, the performance of the COMS is unacceptable. The source owner or operator shall take corrective action to resolve the problem and improve the stability of the simulated zero check method or device or replace the COMS. If the COMS is not replaced, zero alignment audits shall be conducted at least biannually during non-consecutive quarters.

5.5.6 Unacceptable Results- Insufficient Data Capture. Compliance with the 95 percent data capture requirement shall be determined by considering COMS downtime for all causes (e.g., monitor malfunctions, data system failures, preventive maintenance,